WHAT IS CLAIMED IS:

1. A method of fabricating an addressable array of biopolymers on a substrate using a biomonomer with a first linking group which must be activated for linking to a substrate bound moiety, comprising:

(a) forming on a region of the substrate carrying the substrate bound moiety, a solid activator composition;

(b) depositing a biomonomer containing fluid composition on the region so that the solid activator activates the first linking group and the biomonomer links to the substrate bound moiety; and

(c) repeating steps (a) and (b), wherein a biomonomer deposited and linked to the substrate bound moiety in one cycle is the substrate bound moiety for the next cycle, so as to form the biopolymer.

2. A method according to claim 1 additionally comprising repeating steps (a) through (c) at each of multiple different regions of the same substrate.

3. A method according to claim 1 wherein biomonomer fluid composition deposited at a region covers an area greater than that covered by the solid activator composition at the same region.

4. A method according to claim 1 wherein in step (a), the solid activator composition is formed prior to depositing the biomonomer containing fluid, by depositing a composition of solid activator as a fluid composition, and allowing fluid to evaporate.

5. A method according to claim 4 wherein the biomonomer fluid composition deposited at a region covers an area greater than that covered by the activator fluid composition at the same region.

6. A method according to claim 4 wherein the fluid composition has less than 20% by weight of solid activator content.

7. A method according to claim 4 wherein the biopolymers are polynucleotides and the biomonomer is a nucleoside monomer.

8. A method according to claim 7 wherein the polynucleotide is a DNA.

9. A method according to claim 1 wherein the activated biomonomer reacts with a component in an ambient atmosphere.

10. A method according to claim 7 wherein the biomonomer is a phosphoramidite.

11. A method according to claim 2 wherein different biomonomers are deposited in different cycles.

12. A method according to claim 2 wherein the same biomonomers are deposited in different cycles.

13. A method according to claim 4 wherein the biomonomer fluid composition includes a fluid different from that of the activator fluid composition.

14. A method of evaluating for the presence of a target polynucleotide in a sample, using an addressable array fabricated in accordance with the method of claim 1, the method comprising:

(a) exposing the sample to the array, such that target polynucleotide which may be present will bind to one or more predetermined regions of the array; and

(b) observing a binding pattern on the array and evaluating the presence of the target polynucleotide based on the observed binding pattern.

15. A method of fabricating an addressable array of biopolymers on a substrate using biomonomers each with a first linking group which must be activated for linking to a substrate bound moiety, and a deposition system with a head having multiple pulse jets each of which can dispense droplets of a fluid onto a substrate, each jet including a chamber with

an orifice, and including an ejector which, when activated, causes a droplet to be ejected from the orifice, the method comprising:

(a) depositing onto a region of the substrate carrying the substrate bound moiety, a fluid composition of a solid activator;

(b) allowing fluid of the composition to evaporate to form the solid activator on the region;

(c) then depositing from a pulse jet onto the region, a droplet of a biomonomer containing fluid composition so that the solid activator activates the first linking group and the biomonomer links to the substrate bound moiety;

(d) repeating steps (a) through (c) at each of multiple regions of the substrate, wherein at each region a biomonomer deposited and linked to the substrate bound moiety in one cycle is the substrate bound moiety for the next cycle, so as to form a biopolymer at each of the multiple regions.

16. A method according to claim 15 wherein the fluid composition of solid activator is deposited as a droplet from a pulse jet.

17. A method according to claim 16 wherein a droplet of biomonomer fluid composition deposited at a region will cover an area greater than that covered by a preceding droplet of activator fluid composition at the same region.

18. A method according to claim 15 wherein the fluid composition of solid activator is applied as a continuous layer over multiple regions.

19. A method according to claim 16 wherein the fluid of the solid activator fluid composition has a boiling point of less than 100°C.

20. A method according to claim 15 wherein the biomonomer containing fluid composition uses a fluid different from that of the fluid composition of solid activator.

21. A method according to claim 13 wherein the fluid of the solid activator fluid composition has a boiling point of less than 100°C, while the fluid of the biomonomer containing fluid composition has a boiling point of greater than 100°C.

22. A method according to claim 15 wherein the activator fluid composition has less than 20% by weight solid activator content.

23. A method according to claim 15 wherein the biopolymers are polynucleotides and the biomonomer is a nucleoside monomer.

24. A method according to claim 15 wherein the polynucleotide is a DNA.

25. A method according to claim 15 wherein the activated biomonomer reacts with a component in an ambient atmosphere.

26. A method according to claim 15 wherein the biomonomer is a phosphoramidite.

27. A method according to claim 15 wherein, for each of the multiple regions, different biomonomers are deposited in different cycles.

28. A method of evaluating for the presence of a target polynucleotide in a sample, using an addressable array fabricated in accordance with the method of claim 15, the method comprising:

(a) exposing the sample to the array, such that target polynucleotide which may be present will bind to one or more predetermined regions of the array; and

(b) observing a binding pattern on the array and evaluating the presence of the target polynucleotide based on the observed binding pattern.

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29. An apparatus for fabricating an addressable array of biopolymers on a substrate according to a target pattern, comprising:

(a) a deposition system which can separately dispense onto a substrate, fluid compositions of different biomonomers each with a first linking group which must be activated for linking to a substrate bound moiety, and a fluid composition of a solid activator;

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(b) a processor to operate the deposition system, which processor derives from the target array pattern a target drive pattern for operating the deposition system to form the array, the target drive pattern including instructions to the deposition system to deposit the fluid composition of solid activator at each region at which a biomonomer monomer is to be deposited, separate from and preceding deposition of the biomonomer.

30. An apparatus according to claim 29 wherein the deposition system comprises multiple pulse jets which can dispense droplets of the different biomonomer fluid compositions and at least one pulse jet which can separately dispense the activator fluid composition, each jet including a chamber with an orifice, and including an ejector which, when activated, causes a droplet to be ejected from the orifice.

31. An apparatus according to claim 30 wherein the target drive pattern includes ejector instructions such that a droplet of biomonomer fluid composition deposited at a region will cover an area greater than that covered by a preceding droplet of activator fluid composition at the same region.

32. A computer program product, for use on an apparatus for fabricating an addressable array of biopolymer probes on a substrate according to a target array pattern, the program product comprising: a computer readable storage medium having a computer program stored thereon which, when loaded into a computer of the apparatus performs the steps of:

deriving from the target array pattern a target drive pattern for operating a deposition system of the apparatus to form the array, the target drive pattern including instructions to the deposition system to deposit the fluid composition of solid activator at each region at which a biomonomer monomer is to be deposited, separate from and preceding deposition of the biomonomer.

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33. A computer program product according to claim 32 wherein the target drive pattern includes instructions to the deposition system to deposit sufficient biomonomer fluid composition at a region which will cover an area greater than that covered by a preceding droplet of activator fluid composition at the same region.

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